

Revision 4: Eye lid – Lacrimal – Squint

1. Define the following.....

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eye lid:- movable mucocutaneous folds w/ act as a shutter

Blepharitis	• Chronic inflammation of lid margin.
Stye (Hordeolum externum)	• Acute suppurative inflammation of Zies gland & lash follicles forming a small abscess caused by Staph. aureus.
Hordeolum internum	• Acute suppurative inflammation of Meibomian glands forming a small abscess by Staph. aureus.
Chalazion	• Chronic non-specific inflammation (Granuloma) of Meibomian gland.
Rubbing lashes	• A condition in which ^{less} more than 4 lashes are misdirected and rub against the cornea and bulbar conjunctiva.
Trichiasis	• A condition in which more than 4 lashes are misdirected and rub against the cornea and bulbar conjunctiva.
Distichiasis:	• An extra raw of lashes situated in or near the openings of Meibomian glands.
Entropion	• A condition in which the lid margin and tarsal plate are turning inwards towards the eyeball. Alternatively, rolling in of the lid margin.
Ectropion	• A condition in which the lid margin and tarsal plate are turning outwards from the eyeball. Alternatively, rolling out of the lid margin.
Ptosis	• Drooping of UL (Usually d ₂ faulty development, weakness or paralysis of LPS). • Normally, UL covers the upper 1/6 (2 mm) of cornea.
Madarosis	• Permanent loss of eye lashes D ₂ destruction of lash follicles (partial or total).
Poliosis	• Whitening of the lashes.
Lagophthalmos	• * Incomplete closure of palpebral fissure when the lids are completely closed. * Inability of close of eye lids completely.
Symblepharon	• Adhesions between the bulbar and palpebral conjunctiva. + Types :-
Ankyloblepharon	• Adhesion of eyelids to each other (Sometimes only lateral).
Dermatochalasis	• Redundancy of UL skin in old age associated with bulging of orbital fat.
Lacrimation	• Overflow of tears onto the cheek due to increased secretion of tears.
Epiphora	• Overflow of tears onto the cheek due to decreased drainage of tears.
Acute dacryocystitis	• Acute suppurative inflammation of lacrimal sac.
Chronic dacryocystitis	• Chronic inflammation of lacrimal sac mostly D ₂ NLDO.
Xerophthalmia	• Dryness of cornea and conjunctiva.

2. Mention the functions of.....

* *Watery eye:- over-flow of tears over the cheek due to increase secretion or decrease drainage.*

Orbicularis oculi ms (Sphincter of the eye) <i>4. Marginal fibers ms of Riolan → Tear drainage</i>	1. Orbital portion: Forcible closure of the eye. <i>from 11 key. to 17 key.</i> 2. Palpebral portion: gentle closure of eye lid (sleeping) / supports LL against gravity. <i>→ Blinking.</i> 3. Lacrimal portion (Horner ms): pulls L. sac → -ve pressure → tear drainage - Paralysis: Lagophthalmos, Epiphora & P. ectropion. <i>"N.S.:- 7th cranial"</i>
LPS ms	• Elevation of the upper eye lid. <i>for lid crease due to its insertion in the skin of UL.</i> - Paralysis: Ptosis. <i>N.S. 3rd oculo motor.</i>

* *Function of Zies gland:- labrecant role of eye lashes. each lash contain 2 zies gland.*

* *Disorder of eye lash:-*

Dr. Muhamad Abu-elmaaty (4) → Disorder of size: Trechomigaly

① → error of direction rubbing lash - Trechiasis - Distichiasis

② → error in number: Distichiasis - Hypertrechosis - Madarosis

③ → Disorder of color: poliosis

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Meibomian gland	• Secretion of oily layer of tear film: - Prevents over flow of tears over lid margin. - Retards evaporation of tears.
Eye lid	• Protects globe from external injuries. • Helps in tear distribution & drainage (lacrima pump) ^{→ lacrimal portion of orbiculus.} • Helps in Aq drainage. ^{→ by pressure on globe}
Tear film	A. <u>Outer lipid layer</u>: ^{→ oily layer from the meibomian gland} Prevents rapid evaporation of tears / Lubricates the eyelids over the globe. B. <u>Middle aqueous layer</u>: ^{→ aqueous layer from lacrimal gland.} Supplies O₂ to corneal epithelium / Antibacterial as it contains lysozymes. C. <u>Inner mucinous layer</u>: Makes the corneal epithelium hydrophilic.

3. Anatomy / Enumerate Layers of.....

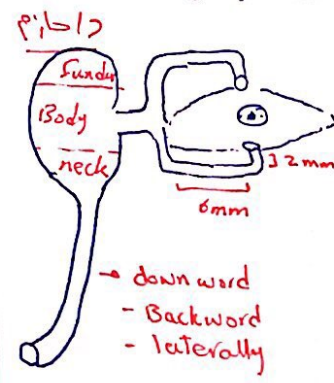
↳ From Goblet Cells in Conj.

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Eye lid B.S of lid:- * arteries:- Sup. and inferior branches of medial & lateral palpebral arteries w/ forming tarsal archades → 2 arcades in upper lid & 1 arcade in LL + anastomosis with other branches. * veins: pretarsal & posttarsal plexuses → ophthalmic * N.S:- motor 7th & 3rd ↳ sensory 5th & 3rd Two mm above lid margin it shows a horizontal line called Sulcus sub-tarsalis ↓ Surgical land mark.	A vertical section in the lid shows the followings: <u>1. Skin</u>: - Thin - Elastic - Distensible - Loosely adherent to the underlying tissues. - It contains no much sebaceous glands. 1mm in thickness <u>2. Subcutaneous areolar layer</u>: - Loose CT - Devoid of fat. - It contains hair follicles, modified sebaceous (Zies) and sweat (Moll's) glands, pigment cells and some BVs, nerves and lymphatics of lid. <u>3. Muscular layer</u>: a. Palpebral part of orbicularis oculi ms. b. Insertion of levator palpebrae superioris ms. c. Muller's ms. <u>4. Sub-muscular areolar layer</u>: - It contains main BVs, nerves and lymphatics of lid. - It is the site for local infiltration anesthesia. ^{→ at the gray line → it act as anatomical and surgical landmark.} <u>5. Fibrous layer</u>: i. Orbital septum: thin membrane extending from tarsus to orbital margin. z. Tarsus: - It is the skeleton of lid (Condensed fibrous tissue). <u>Shape</u>: D-shaped. <u>Thickness</u>: 1 mm. <u>Size</u>: a. In UL: 30 X 10 mm. b. In LL: 30 X 5 mm. <u>Attachments</u>: a. <u>Superiorly & inferiorly</u>: To orbital margin by orbital septum. b. <u>Med & late</u>: To orbital margin by med & lat palpebral ligaments. <u>Embedded in it</u>: - Vertically arranged Meibomian glands (20 - 30 in UL & 10 - 15 in LL). <u>6. Non-striated muscle layer</u>: Muller's ms (helps in elevation of eye lid) <u>7. Tarsal (Palpebral) conjunctiva</u>: - Firmly adherent to the tarsus. ^{Supply → Horner's} ptosis - miosis anhydrosis - enophthalmos.
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	It shows the sulcus subtarsalis (2 mm from the lid margin).
Lacrimal drainage system: 	A. 2 Puncti: - On posterior border of lid margin (6 mm lateral to medial canthus). B. 2 Canaliculi: Extension: Fine tubes from the puncti to the lacrimal sac. Vertical part: 2 mm. Horizontal part: 8 mm → 6 mm - The 2 canaliculi unite into a common canal (1-2 mm) that opens at the junction between the upper 1/3 and lower 2/3 of lacrimal sac. C. Lacrimal sac: Site: In the lacrimal fossa in the medial wall of orbit. Size: 8 X 12 mm (When distended). Parts: Fundus: Blind upper part (Above the medial palpebral ligament). Body: Main part. Neck: Narrow and continuous with nasolacrimal duct. D. Nasolacrimal duct (NLD): Length: 12-24 mm. Extension: From the lower end of lacrimal sac to the inferior meatus of nose that is guarded by Hasner's valve. Direction: Downwards – Slightly backwards – Laterally.
Pre corneal tear film	A. Outer lipid layer: Source: Meibomian glands. B. Middle aqueous layer: Source: Lacrimal glands. C. Inner mucinous layer: Source: Goblet cells.

4. Mention 5 clinical signs of

Ptosis	Arching (Elevation) of eyebrows. Corrugation (Wrinkling) of skin of forehead: D₂ contraction of frontalis ms as an attempt to overcome the partial ptosis. Absent superior palpebral furrow: In severe ptosis. Compensatory backward head tilt: In severe bilateral ptosis. Ophthalmoplegia (Partial or complete): In paralytic ptosis. → paralytic squint.
Rubbing lashes	Misdirection of 4 or less lashes & rub against cornea and bulbar conjunctiva.
Trichiasis	As rubbing lashes but more than 4 / conj. Hyperemia.
Entropion	As Trichiasis + rolling in of lid margin, so post. Lid margin not seen.
Ectropion	- Depending on the degree of ectropion. Mild: Exposure of lacrimal punctum. Moderate: Exposure of tarsal conjunctiva → hyperemia → ulcer → epithelialization Severe: Exposure of lower fornix. → ulceration.
Squamous blepharitis	- Small white dried scales between the eyelashes. - Removal of these scales reveals a hyperemic lid margin without ulceration.

→ Chemosia → Ptosis
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+ Complication

Ulcerative blepharitis	- Yellow crusts at the base of the eyelashes gluing them together. - Removal of these crusts leaves minute bleeding ulcers on lid margin.
Angular blepharo-conjunctivitis.	- Red fissured and edematous lid margin at the angles + Macerated skin. - Conjunctivitis + Discharge.
Stye (Hordeolum externum)	- Diffuse red swelling of eyelid. - <i>Tenderness - Diffuse edema</i> Related to eyelash close to lid margin (<u>Lash root</u>). - Abscess form & points on the skin.
Hordeolum internum	As stye but: Related to openings of Meibomian glands (White line). Points on either: - Palpebral conjunctiva. - Lid margin behind the gray line (White line).
Chalazion	- Slowly progressive painless swelling of eyelid (Single or multiple). - Tenderless lid swelling CCC pale, bluish area surrounded by little congestion. - Well circumscribed, better felt than seen.
Lagophthalmos	- Epiphora. - Chronic conjunctivitis and xerosis. - Exposure keratopathy: lower 1/3 of cornea.
Symblepharon	- Bad cosmetic appearance. - Limitation of ocular motility → diplopia. - Ch. Conjunctivitis, exposure keratopathy → diminution of vision. Dr. Muhamad Abu-elmaaty
Congenital NLD obstruction → as <i>Chronic Dacryocystitis.</i>	Epiphora: Noticed 2-3 weeks after birth. Recurrent conjunctivitis. Reflux of Clear fluid – Mucus – Muco-pus – Frank pus: On pressure over lacrimal sac.
Acute dacryocystitis	- Marked edema and redness of skin over the lacrimal sac. - Tender swelling of lacrimal sac below the medial canthus. - Regurgitation test: -Ve due to congestion of epithelium of canaliculi. - Abscess formation with fluctuation. <i>Early no pain edema's not +ve so</i>
Chronic dacryocystitis	- Swelling of lacrimal sac below the medial canthus. <i>not tender - not redness</i> - Regurgitation test: +Ve. <i>complication: Hypopyon ulcer</i>
Dry eye (Xerophthalmia)	Shirmer's test: Deficient tear production measured by filter paper. Tear film break up time (BUT): Diminished. Rose Bengal stain: The degenerated epithelium of conjunctiva, cornea are stained red. Punctate epithelial erosion of cornea.
Epiphora	A. Exclude the causes of excessive lacrimation. B. Lid margin for ectropion..... C. Palpation of L. sac: for masses or tenderness. D. Investigations: Regurgitation test: Reflux of pus or tears (+ve) from the Puncti in case of NLD obstruction. Fluorescein test: A drop of fluorescein is installed in the conjunctival sac.

3- irrigation test by Saline
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6. probing:

To detect the level of the obst. by the needle

A cotton pellet is put under the inferior turbinate.

3. Jones dye test:

- a. Fluorescein test.
- b. The lacrimal passage is irrigated with saline. If the fluorescein is not recovered and saline does not reach the nose, there is a complete obstruction.

4. Dacryocystography:

A radiocontrast medium is injected. X-ray is done at intervals to detect the filling of lacrimal system.

5. Plain X-ray: For the diagnosis of tumors and fractures.

5. Give 5 complications../ causes

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Ptosis [Etiological types]

associated signs.

A. Congenital ptosis: Faulty development of LPS ms or its n. supply.

B. Acquired ptosis: ^{maldevelopment of LPS or its N.}

1. Mechanical ptosis: Due to increased weight of lid.
2. Traumatic ptosis.
3. Neurogenic ptosis:
 - a. 3rd n. palsy: Paralysis of LPS ms.
 - b. Horner's syndrome: Paralysis of Muller's ms.
 - c. Marcus Gunn jaw winking ptosis (Marcus Gunn phenomenon).
4. Myogenic ptosis: Myasthenia gravis.
5. Hysterical ptosis: Suddenly in young female with emotional troubles.
6. Pseudo-ptosis: Due to loss of support. as in Case of enophthalmos.
7. Involuntional (Senile) ptosis: Due to:
 - a. 1ry weakness of LPS ms.
 - b. Aponeurotic defects (Attenuation, dehiscence).
8. Aponeurotic ptosis: Due to: ^{Senile "Involuntional" degenerative}
 - a. Post cataract or ocular surgery / Blepharochalasis.
 - b. Local blunt trauma / Chronic lid edema.

Trichiasis [Etiology]

اشع الذاغ دلب بياغ
entropion.

A. 2ry to entropion.

^{acquired entro.}
^{Congenital → Distichiasis}

B. Pure Trichiasis (Alone): Fibrosis distorting the hair follicles due to:

1. Trachoma (The most common cause).
2. Ulcerative blepharitis. & 3- Burns.

Trichiasis [Complications]

A. Conjunctival complications:

^{"epidermalization"}
Chronic conjunctivitis / Conjunctival ulcers / Epithelial plaque.

B. Corneal complications:

Recurrent ulceration [Leading to corneal opacification] / Superficial vascularization / Epithelial plaque.

Madarosis [Causes]

A. Local causes: C. Congenital: led Coloboma.

- a. Inflammatory: Stye – Ulcerative blepharitis – Trachoma.
- b. Traumatic: Burns.
- c. surgical: Electrolysis – Diathermy.

B. General causes [AMLS]: Alopecia / Myxedema / Leprosy / Syphilis.

Entropion [Etiological types]

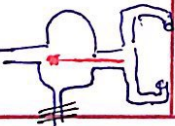
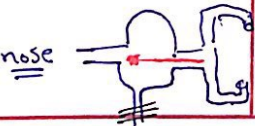
A. Cicatricial (Fibrotic) entropion: Due to fibrosis of palpebral conjunctiva.

- a. Post-inflammatory: Membranous conjunctivitis / Trachoma.
- b. Post-traumatic: Injuries and chemical burns / Operations on the lids.

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	B. Spastic entropion: Due to Lack of support of lid in presence of blepharospasm as in Enophthalmos / Prolonged eye bandage. C. Involuntional (Senile) entropion: Usually occurs LL. a. Loss of SC elastic tissue of lid. <i>* The most Common Cause is the over riding of preseptal on the pretarsal</i> b. Redundant loose skin of lid. c. Senile loss of orbital fat. <i>normal →</i> D. Mechanical entropion: Due to Lack of support of lid in absence of blepharospasm as in Empty socket (After enucleation) / Enophthalmos. E. Congenital entropion: Usually affects the whole LL. F. Infantile entropion: In plump (Fatty) infants.
Entropion [Complications]	As trichiasis.
Ectropion [Etiological types]	A. Cicatricial (Fibrotic) ectropion: Due to scarring and contracture of skin of LL by Burns / Trauma / Tumor. B. Spastic ectropion: Typically occurs in children and young. Spasm of orbicularis palpebrum ms (Blepharospasm) when the lids are well-supported and the overlying skin is firm e.g. in cases of: Proptosis / Hypertrophy of conjunctiva due to chronic conjunctivitis. C. Involuntional (Senile) ectropion: Only occurs in LL. a. Redundancy of lid skin. b. Laxity orbicularis palpebrum ms and palpebral ligaments. D. Mechanical ectropion: Due to increase of weight of LL e.g. by multiple chalazia. E. Congenital ectropion: Rare. F. Paralytic ectropion: a. Paralysis of orbicularis oculi ms due to LMN lesion of fascial n. e.g. Bell's palsy. b. Trauma to orbicularis oculi ms.
Ectropion [Complications]	Epiphora: Eczema of lid skin: Due to epiphora. - Epiphora → Eczema of lid skin → Its scarring → More ectropion (Viscous cycle). Lagophthalmos: In severe cases. Conjunctival complications: Chronic conjunctival hyperemia / Chronic exposure conjunctivitis. Hypertrophy of palpebral conjunctiva / Xerosis. Corneal complications: Exposure keratitis / Corneal ulceration / Xerosis.
Blepharitis [Etiological types]	A. Squamous blepharitis: B. Ulcerative blepharitis: C. Angular blepharitis-conjunctivitis: D. Parasitic blepharitis:
Chalazion [Complications]	Infection: Forming an acute chalazion. <i>hordeolum internum</i> Marginal chalazion: - The granulation tissue forms only in the duct and projects on the lid margin as a red nodule. <i>* Ptosis</i> It may open through the conjunctiva. <i>* Astigmatism → in the UL due to pressure.</i> <i>* recurrent</i> <i>* Cyst formation.</i> <i>* malignancy.</i>

Lagophthalmos [Causes] 	A. Local causes: 4P - CS 1. <u>Physiological</u> during sleep due to lack of tone of orbicularis oculi ms. 2. <u>Paralysis</u> of orbicularis oculi ms e.g. fascial palsy (Bell's palsy). 3. <u>Paralytic ectropion</u> - <u>Proptosis</u> . 4. <u>Coloboma</u> of lid - <u>Scarring</u> of lid. → atony :- in Coma - typhoid - severe BSWN. B. General causes: Severe illness and weakness with atony of the muscles.
Acute dacryocystitis [Complications] 	1. <u>Lacrimal fistula</u> : The sac may burst anteriorly through the skin. 2. <u>Pyocele</u> : If the canaliculi are obstructed.  3. <u>Orbital cellulitis and cavernous sinus thrombosis - Chronic dacryocystitis.</u>
Chronic dacryocystitis [Complications] 	1. <u>Lid</u> : Epiphora - Eczema - Ectropion (Viscous cycle). 2. <u>Conjunctiva</u> : Chronic conjunctivitis. 3. <u>Lacrimal sac</u> : Mucocele - Pyocele (If the canaliculi are obstructed). 4. <u>Lacrimal Fistula</u> . 5. <u>Cornea</u> : Hypopyon ulcer. 6. <u>Endophthalmitis</u> : If not treated before an IO operation.
Dry eye (Xerophthalmia) [Causes] 	1. <u>Congenital absence of lacrimal gland</u> . 2. <u>Inflammation of lacrimal gland</u> : Sarcoidosis. "Dacroadenitis". 3. <u>Tumors of lacrimal gland</u> : Mixed lacrimal gland tumor. 4. <u>Kerato-conjunctivitis sicca</u> : Autoimmune dis → Atrophy of lacrimal gland. 5. <u>Conjunctival scarring</u> : Due to: Trachoma / Chemical burns / Steven Johnson S. - Ocular cicatricial pemphigoid. المرض القضي
Watery eye [Causes]	A. Emotional conditions. B. Reflex lacrimation: Inflammation of lid, conjunctiva, cornea, iris and C. body / FB / Glaucoma / Error of refraction / Latent squint.
Epiphora [Causes]	A. Lacrimal pump failure: Due to: 1. Abnormality in the posterior border of lid margin / Ectropion. 2. Orbicularis oculi ms paralysis (Bell's palsy). B. Obstruction of lacrimal passage: <u>Levels of obstruction:</u> Puncti - Canaliculi - Lacrimal sac - NLD - Nose. <u>Causes of obstruction:</u> a. <u>Congenital</u> : Punctual atresia - NLD obstruction. b. <u>Inflammatory</u> : Trachoma - Herpes - Fungal. + Common cold → NLD obst. c. <u>Traumatic</u> : Bony fracture - Surgical trauma. d. <u>Tumors</u> : Nasal polyps - Maxillary tumors. FB: Lashes.
Ptosis surgery (Hess operation)  Cause lagophthalmos	• <u>Pre-operative:</u> Complications of retro bulbar anesthesia. (Retrobulbar hematoma - Globe perforation - Optic nerve damage). سؤال • <u>Intra-operative:</u> Dry eye - Traumatic injury to: Iris / Cornea / EOM. • <u>Post-operative:</u> Under correction is the commonest complications / Over correction → Exposure keratitis / Lid contour abnormalities. → شكوى
DCR:  nose	• <u>Pre-operative:</u> Complications of retro bulbar anesthesia. (Retrobulbar hematoma - Globe perforation - Optic nerve damage). سؤال • <u>Intra-operative:</u> Dry eye - Traumatic injury to: Iris / Cornea / EOM. • <u>Post-operative:</u> Abnormally fused tissue in the nose / Displacement of stent placed in the duct / Excessive bleeding / Infection / Prominent facial scar.

Tube of silicon

* Anatomy of the palpebral fissure:-

- 1 - space between the two eye lid when the lids are open
- 2 - shape: Elliptical
- 3 - Angle: Canthi ↳ medial → round
↳ lateral → acute
- 4 - length:- about 30 mm
- 5 - width: ♂ → 7:10 mm / ♀ → 8:12 mm

* Squamous Blephritis:-

Def: infection by weak organism to the Zeis gland w^h secrete irritant fatty acid.

CCC: * Seborrhea * white small scales (1) lashes
* remove of lash → hypremia → no bleeding.

Complication:- Ptylosis x thickening of lid margin.

TTT:- 1 - TTT seborrhea 2 - remove white scales by sodium bicarbonate.
3 - antibiotic & steroid eye ointment.

* ulcerative Blephritis:-

Def:- Chronic inf. of lid margin (By) Strep. aureus

CCC! 1 - Burning sensation 2 - lacrimation 3 - Pulling of lashes

3 - yellow crust glue the lash to each other.

4 - removal of lashes leave minute ulcers and early bleeding.

Compl. 1 -

TTT:- * General:- Improve health & control diabetes & correct error of refraction

* local:- 1 - 3%. Sodium bicarbonate → remove crust

2 - antibiotic

3 - Epilate any maldirection lashes.

* angular Blephritis:-

1 - morax Axenfeld

2 - maceration & redness in Canthi

3 - Sensitive to Terramycin & zinc